22 June 2018

Mr. Richard Greenwood
Statewide Geophysical Survey Coordinator
California States Lands Commission
Mineral Resources Management Division
200 Oceangate 12th Floor
Long Beach, CA 90802-4331

Subject: Proposed Geophysical Survey Sylmar Ground Return System Marine Facility, Santa Monica Bay, CA

Dear Mr. Greenwood,

MBC will conduct a remotely operated vehicle survey in the Santa Monica Bay (Lat: 34.036956 °N, Long: -118.556802°W) at the location of the Sylmar Ground Return System Marine Facility. The survey is scheduled to take place between July 16-July 31, weather depending during daylight hours. The survey is scheduled to take between one and three days to complete, and a trained marine mammal observer will be onboard during duration of survey. Using Zephyr Marine owned research vessel Minotaur the ROV survey will be conducted in a round-trip fashion along the proposed transmission cable route. The proposed route extends from a point approximately 1,200 feet from shore to approximately two miles offshore at the proposed location of the electrode array in approximately 100 feet of water. The proposed survey will utilize a SeaBotix LBV 300-6 ROV, and two fiber optic tethers will be used to deploy the ROV. A Tritech MicroNav ROV Tracking System and Micron Scanning Sonar will be used for obstacle avoidance. The survey will be conducted under MBC Aquatic Sciences California State Lands Commission Geophysical Survey Permit No. PRC - 9306. Please find the required documentation pertaining to this notification included.

MBC *Aquatic Sciences*

James Nunez
Scientist

EXHIBIT G

California State Lands Commission Presurvey Notice Requirements for Permittees to Conduct Geophysical Survey Activities

All parts of the Presurvey Notice must be adequately filled out and submitted to the CSLC staff a minimum of twenty-one (21) calendar days prior to the proposed survey date to ensure adequate review and approval time for CSLC staff. Note that one or more of the items may require the Permittee to plan well in advance in order to obtain the necessary documentation prior to the Notice due date (e.g., permits from other State or Federal entities).

Please use the boxes below to verify that all the required documents are included in the Presurvey Notice. If "No" is checked for any item, please provide an explanation in the space provided. If additional space is needed, please attach separate pages.

Yes	No	
☒	☐	Geophysical Survey Permit Exhibit F
☒	☐	Survey Location (including a full-sized navigation chart and GPS coordinates for each proposed track line and turning point) Explanation: Provided
☐	☒	Permit(s) or Authorization from other Federal or State agencies (if applicable) Explanation: No Federal agenices or other State agencies are involved.
☒	☐	21-Day Written Notice of Survey Operations to Statewide Geophysical Coordinator/
☒	☐	U.S. Coast Guard Local Notice to Mariners/
☒	☐	Harbormaster and Dive Shop Notifications Explanation: Provided
☒	☐	Marine Wildlife Contingency Plan Explanation: Provided
☒	☐	Oil Spill Contingency Plan Explanation: Provided
☒	☐	Verification of California Air Resources Board's Tier 2-Certified Engine Requirement Explanation: Provided
☒	☐	Verification of Equipment Service and/or Maintenance (must verify sound output) Explanation: Provided
☐	☒	Permit(s) or Authorization from California Department of Fish and Wildlife for surveys in or affecting Marine Protected Area(s) (if applicable) Explanation: Survey area is not and does not affect Marine Protected Areas

NOTE: CSLC staff will also require verification that current biological information was obtained and transmitted as outlined in Section 5 of this permit.

EXHIBIT F

PRESURVEY NOTIFICATION FORM

Applicant/Permittee's Mailing Address
MBC Aquatic Sciences
3000 Redhill Ave
Costa Mesa, CA 92626

Date: 22 June 2018

Jurisdiction: Federal ____ State X Both ____

If State: Permit #PRC 9306

Region: I

Area: Santa Monica, Ca

GEOPHYSICAL SURVEY PERMIT

Check one: X New survey ____ Time extension of a previous survey

MBC (Applicant/Permittee) will conduct a geophysical survey offshore California in the survey area outlined on the accompanying navigation chart segment. If you foresee potential interference with commercial fishing or other activities, please contact the person(s) listed below:

FEDERAL WATERS (outside 3 nautical miles)

1) Applicant's representative
2) Federal representative (e.g., Bureau of Ocean Energy Management [BOEM] or National Science Foundation [NSF])

NOTE: Any comments regarding potential conflicts in Federal waters must be received by the Applicant's Representative and lead Federal agency within ten (10) days of the receipt of this notice.

STATE WATERS (Inside 3 nautical miles)

1) Permittee's representative
2) CSLC representative

NOTE: Any comments regarding potential conflicts in State waters should be received as soon as possible by the Permittee's representative, no more than fifteen (15) days after the receipt of this notice.

1. Expected Date of Operation July 16-31, 2018 weather dependent
2. Hours of Operation 07:00 -18:00 hours (daylight hours), 1-3 days possible for survey completion
3. Vessel Name R/V Minotaur
4. Vessel Official Number CF 3079 UK
5. Vessel Radio Call Sign N/A - No longer required by Feds
6. Vessel Captain's Name Scott Cross
7. Vessel will monitor Radio Channel(s) 16
8. Vessel Navigation System Differential GPS

9. Equipment to be used SeaBotix LBV 300-6 ROV Micron DST Sonar

   a. Frequency (Hz, kHz) Micron DST Sonar = 700kHz

   b. Source level (dB re 1 µPa at 1 meter (m) [root mean square (rms)]) 210

   c. Number of beams, across track beamwidth, and along track beamwidth 1 degree to 2 degree conical beamwidth: NA 1 beam

   d. Pulse rate and length na

   e. Rise time na

   f. Estimated distances to the 190 dB, 180 dB, and 160 dB re 1 µPa (rms) isopleths na

   g. Deployment depth surface to 100 ft depending on water depth

   h. Tow speed 1-2 knots

   i. Approximate length of cable tow 3-200 feet, depending on water depth

Applicant's Representative:
MBC Aquatic Sciences
3000 Redhill Ave
Costa Mesa, CA 92626
D. Shane Beck, President
sbeck@mbcaquatic.com Tel: 714)850-4830

California State Lands Representative
Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331
(562) 590-5201

BOEM Representative
Joan Barminski
Regional Supervisor
Office of Strategic Resources
770 Paseo Camarillo
Camarillo, CA 93010
(805) 389-7585

Other Federal Representative (if not BOEM):
Not Applicable

OIL SPILL AND MARINE WILDLIFE CONTINGENCY PLAN FOR SYLMAR GROUND RETURN SYSTEM SURVEY

June 2018

PRC 9306. Pre-Construction Remotely Operated Vehicle (ROV) Survey at Sylmar Ground Return System Marine Facility, Santa Monica, CA.

TABLE OF CONTENTS

SECTION I. INTRODUCTION

MBC Aquatic Sciences (MBC) and Weston Solutions will be conducting a remotely operated vehicle (ROV) survey in Santa Monica Bay, near the city of Santa Monica in Los Angeles County. The pre-construction ROV survey will be in support of the Los Angeles Department of Water and Power's (LADWP) upcoming project to replace the existing Sylmar Ground Return System (SGRS) Marine Facility. An ROV survey of the proposed new route for the undersea transmission line will be conducted prior to the onset of construction activity, and will ensure that project facilities will be located within soft-bottom conditions by avoiding rocky reef and kelp habitat. The ROV survey is required by the California Coastal Commission Coastal Development Permit (#9-16-0384) and the U.S. Army Corps of Engineers Nationwide Permit (SPL-2016-003130-PKK).

Prior to conducting the ROV survey, MBC and Weston will notify the California State Lands Commission, publish a Notice to Mariners with the U.S. Coast Guard (USCG), and send e-mail notifications to all local marinas, harbors, and dive shops.

SECTION II. SURVEY AND EQUIPMENT DESCRIPTIONS

MBC and Weston Solutions will conduct the ROV survey in the Santa Monica Bay (Lat: 34.036956 °N, Long: -118.556802°W) at the location of the Sylmar Ground Return System Marine Facility (figure 1). The survey is scheduled to take place between July 16-July 31, weather depending during daylight hours. The survey is scheduled to take between one and three days to complete. Using Zephyr Marine owned research vessel Minotaur the ROV survey will be conducted in a round-trip fashion along the proposed transmission cable route. The proposed route extends from a point approximately 1,200 ft from shore to approximately two miles offshore at the proposed location of the electrode array in approximately 100 feet of water (Figure 2). Additional survey area will include impact areas as described in the anchorage plan (Figure 3). Anchorage plan impact area are located along proposed transmission cable route. The proposed survey will utilize a SeaBotix LBV 300-6 ROV, and two fiber optic tethers will be used to deploy the ROV. A Tritech MicroNav ROV Tracking System and Micron Scanning Sonar will be used for obstacle avoidance.

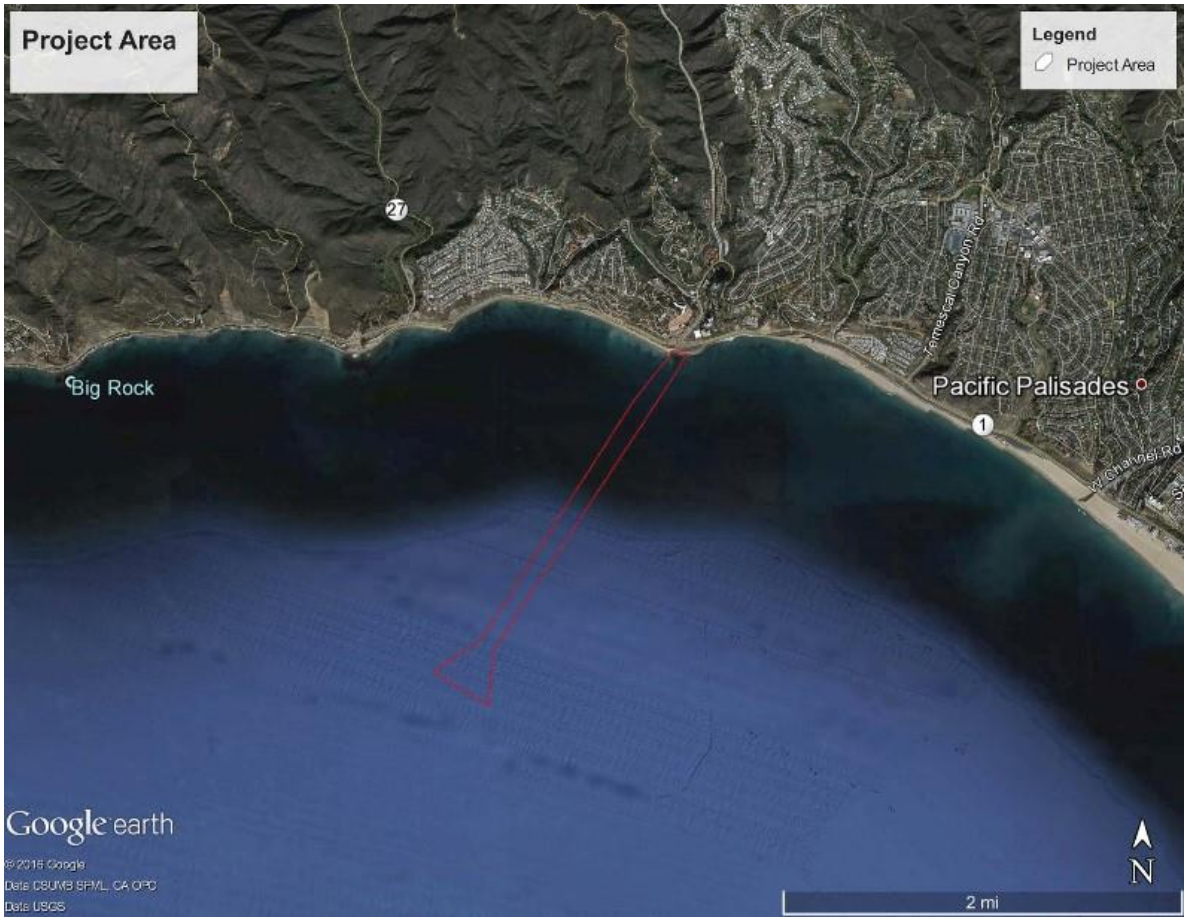


FIGURE 1: PROJECT AREA SANTA MONICA, CA

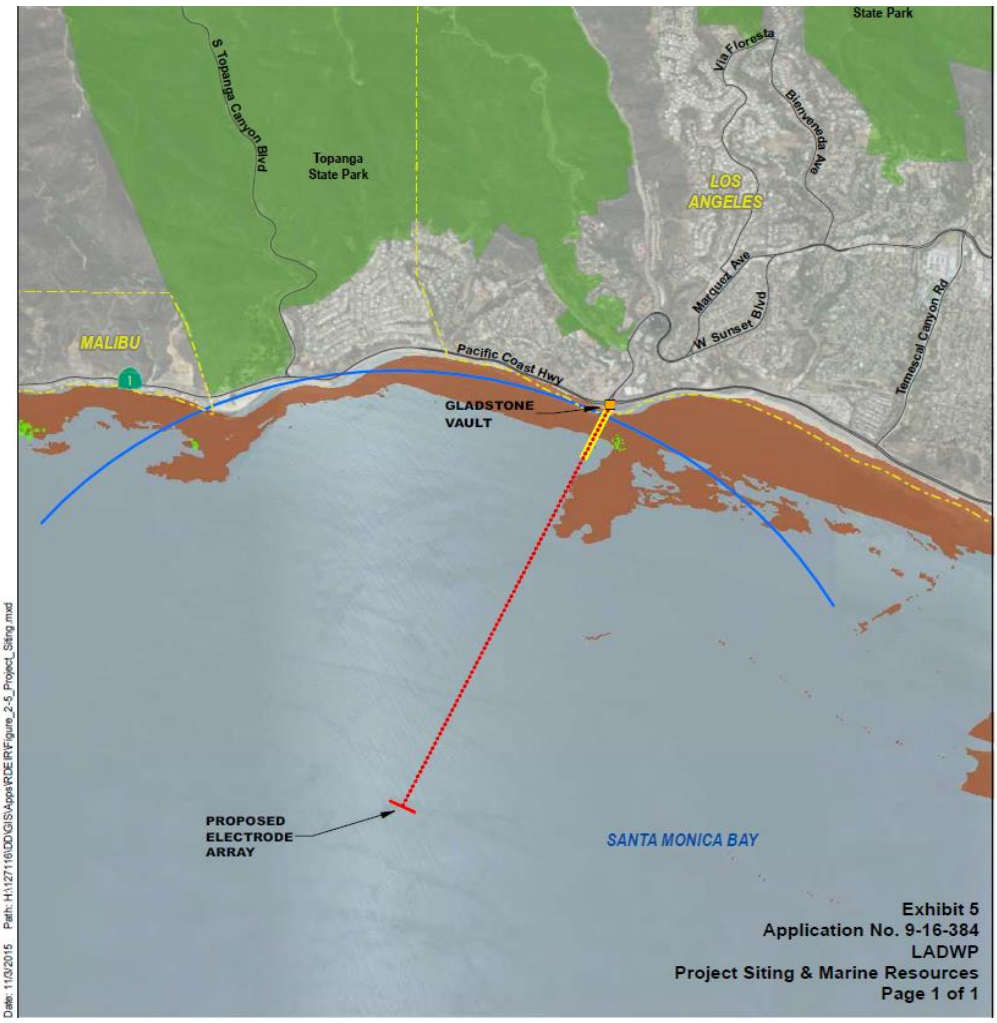


FIGURE 2: PROPOSED SURVEY ROUTE

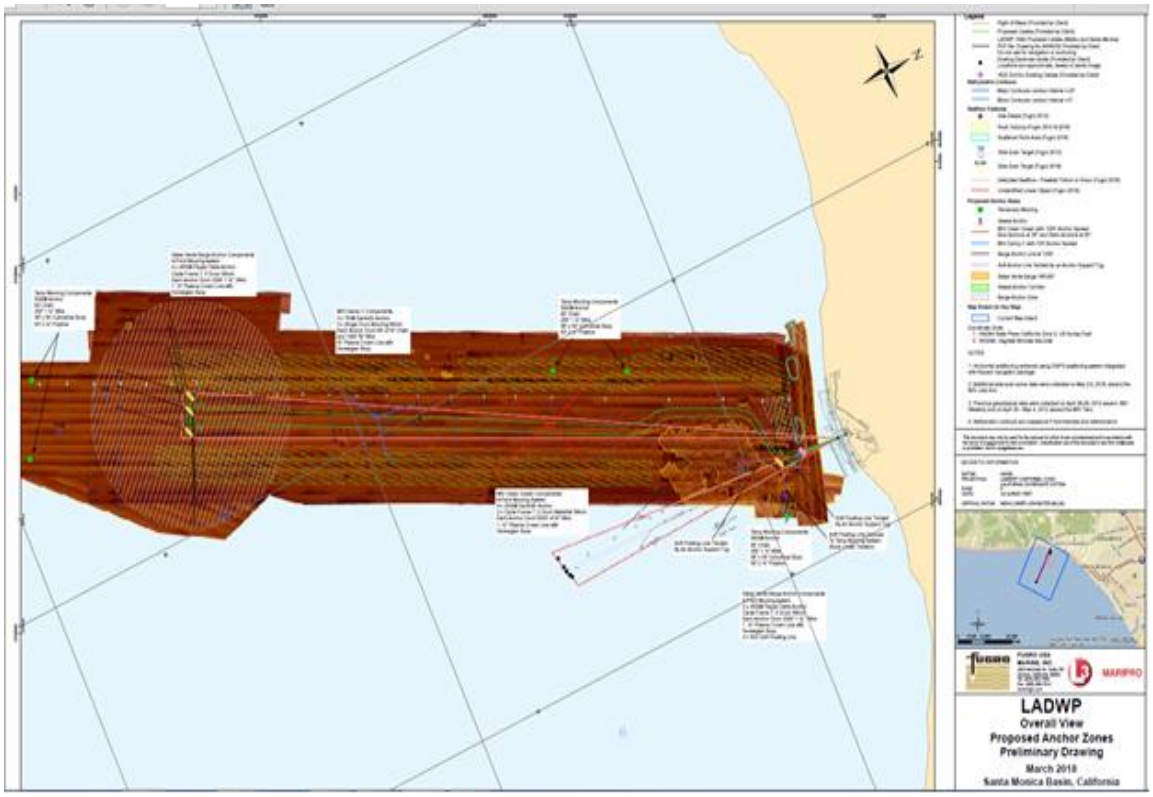


FIGURE 3: ANCHORAGE PLAN IMPACT AREAS

Vessel Description

The ROV survey will be conducted using the R/V Minotaur (figure 4). The Minotaur is 30-ft long with a 250-horse power Honda engine. The research vessel has 120 gallons of fuel capacity and uses approximately 45 gallons per hour. The R/V Minotaur uses gasoline as fuel, and only diesel engines are required to comply with the CARB Tier 2 certification. The Minotaur cannot exceed the daily NOx emissions since the vessel holds 120-gallons of fuel and the anticipated maximum fuel consumption will be less than 45 gallons.

FIGURE 4: R/V MINOTAUR

Survey Equipment Descriptions

The cable route will be surveyed using a SeaBotix LBV 300-6 ROV operated by PRO-ROV. The ROV has 270-degree rotating color video and audio capabilities as well as an onboard tracking and sonar system for navigation and obstacle avoidance. A high-bright color video monitor for the ROV will be used to allow for easy viewing during inspection of the cable route and electrode array. A davit system with 100-lb clump weight for ROV will be used so that the ROV stays below and in line with the vessel at all times during the survey. Two fiber optic tethers will be used, with one acting as a backup. All equipment will be tested prior to departure to ensure that it is in good working order. The sonar system utilized for navigation and obstacle avoidance operates at low energy. The manufacturer's specification sheets are provided in the following sections, along with a description of the ROV and navigational equipment characteristics

.

SEABOTIX

Little Benthic Vehicle

LBV300-6 MiniROV Systems

The SeaBotix LBV300-6 Series offers unprecedented pulling power for long line penetrations and higher currents at depth.

- 300 meter (1,000ft) depth rating and tether lengths to 2,000 meters (6,000ft)
- 6 Powerful Brushless DC thrusters with individual oil-compensators
- 4-axis maneuverability including 4 forward thrusters
- Ultra small diameter high strength, durable, low drag tether
- Video and data transmission over high quality fiber optics and high resolution low light color camera
- 270° range of view with high intensity LED array tracking camera
- Optional lightweight Launch and Recovery System (lwLARS) for simplistic tether/vehicle management

With optional tether lengths to 2,000 meters, the LBV300-6 is unmatched in its capability to perform incredibly long internal pipe inspections in confined spaces. Data quality is exceptional with fiber optic video and sensor data. The available lightweight Launch and Recovery System (lwLARS) offers a motorized reel, power sheave, level-wind, and line counter for easy 1-2 person portability and operation in the most demanding applications.

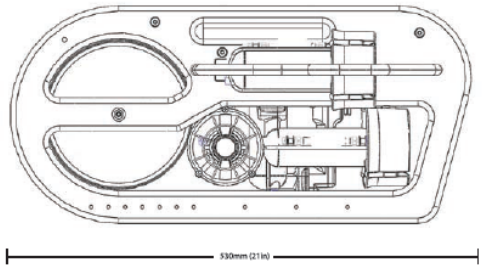
www.SeaBotix.com

SeaBotix

LBV300-6 Specifications

General

Depth Rating:	300m (1,000ft)
Length:	530mm (21in)
Width:	484mm (19.1in)
Height:	254mm (10in)
Diagonal:	546mm (21.5in)
Weight in air:	13kg (28.7lbs)

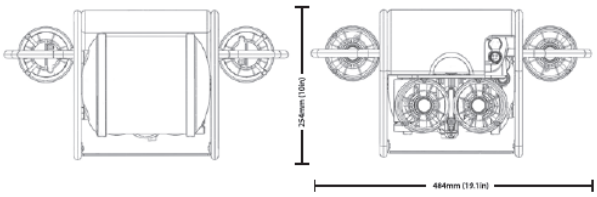


Thrusters/Performance

Configuration:	4 forward, 1 vertical, 1 lateral
Motor Type:	Brushless DC direct drive
Bollard Thrust:	4.9kgf (10lbf) each
Speed at Surface:	3.5 knots (1.54m/sec)
Max Operating Current:	2.5 knots (1.3m/sec)

Cameras/Lighting

Camera:	520 line High resolution color
Range of View:	270 Degrees
Focus:	Manual (90mm to infinity)
Format:	NTSC or PAL
Transmission Type:	Fiber optic
Lighting:	Internal 700 Lumen LED
	Tracks color camera



Control System

Configuration:	Rugged case with weatherproof monitor and removable operator control unit
Monitor:	38cm (15") LCD
Power Requirement:	3,000 watts, 100-240 VAC
Safety:	Isolated input, circuit breaker, LIM, leak monitor Meets & exceeds AODC 035 "Code of Practice for the Safe use of Electricity in Water"
Auto Functions:	Depth, heading, trim
Video Overlay:	Depth, heading, lights, thruster gain, turns counter, camera angle, time, date and user programmable characters

Tether/Reel

Diameter:	8mm (0.3in) nominal
Length:	350m (1,150ft) standard
Working Load:	100kgf (220lbf)
Breaking Strength:	700kgf (1,543lbf)
Buoyancy:	Neutral in fresh, slightly positive in seawater
Reel:	Heavy duty with slip ring

Options

Tether Lengths:	150-2,000m (500-6,000ft)
Grabber:	Three jaw, interlocking small, interlocking large, parallel, cutter
Sonar:	Scanning, profiler
Tracking:	USBL positioning system
Console:	Integrated Navigation and Control Console
Lights:	Multiple head ultra bright LED
Other:	IwLARS, laser scaling, zoom camera, thickness gauge, CP and more

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innovative underwater technology

www.tritech.co.uk

MicronNav

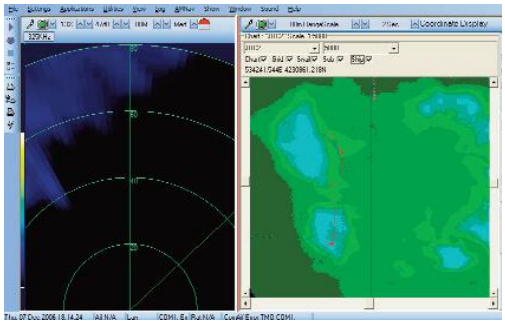
Features

- Quick and easy to mobilise
- Integrated motion sensor in dunking transducer
- Seamless integration into Tritech's Seanet Pro software control system
- Connects via the "aux port" of Tritech's sonar systems - no need for extra umbilical communications channels

Applications

- Mini/Micro ROV navigation system
- Diver tracking system (optional transponder mode)
- AUV tracking system (optional transponder mode)
- ROV location beacon (optional transponder mode)

Picture of MicronNav100 Interface Unit, USBL Dunking Transducer and MicronNav subsea unit.



Sonar and navigation display, bitmap chart display with ship(blue) and ROV(red) "snail trails"

The MicronNav system is an innovative USBL positioning system designed for small vehicles. It has been primarily designed to be used in conjunction with the Tritech Micron/SeaSprite sonar and other Tritech Micro products. This concept will also be adapted and integrated into the Tritech SeaKing range of products in the future.

The system comprises a subsea MicronNav unit, a surface USBL transducer unit with integral Magnetic Compass and Pitch/Roll sensors, a surface MicronNav100 Interface module and operating software under control of the customer host PC/Laptop.

MicronNav uses the very latest in Spread Spectrum acoustic technology. This provides a robust method for communications between the dunking transducers and the vehicle responder/transponder.

It can be used as a stand-alone system, powered by and communicating with the MicronNav through a spare RS232 port on the ROV (at 9600 baud) or RS485 through a spare screened twisted pair in the umbilical. Alternatively it can be integrated with the Tritech Micron/SeaSprite Sonar communicating via the sonar RS232 aux port.

The USBL transducer is designed to provide 180 degree hemispherical coverage below the transducer, allowing vehicle tracking in very shallow water. The design of the ROV MicronNav transducer provides omni-directional coverage.

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Specifications

System:

Positioning Technology	Ultra Short Baseline (USBL)
Frequency Band	20-28KHz
Tracking Range	500m (1,640ft) typical Horizontal, 150m (492ft) typical Vertical
Range Accuracy	+/- 0.2 meters typical (7.87 inches)
Bearing Accuracy	+/-3 degrees
Position Update Rate	0.5 Seconds – 10 Seconds
Targets Tracked	1 responder and up to 15 transponders
Data Display	Polar and Cartesian display with optional user bitmap chart
Data Recording	All Data recorded in SeaNet Format for Replay or Analysis
Surface Navigation	SeaNet GPS and Heading/Attitude Sensors supported. Position of Surface vehicle displayable.
Surface Station Power	110-220V AC or 9-30V DC

USBL Transducer:

Operating Beamwidth	180 degrees
Maximum Diameter	110mm (4.33 inches) including mounting plate
Body Tube Diameter	75mm (2.95 inches)
Maximum Height	270mm (10.63 inches)
Weight in Air	1.96kg (3lbs 15oz)
Weight in Water	810g (1lb 12oz)

MicronNav Unit (fitted on vehicle):

Beamwidth	Omni directional Transducer
Power Requirement	12-50V DC
Power Consumption	3.5W Transmitting 280mW Standby
Transmitter Source Level	169dB re 1uPa @ 1M
Interface	RS232 or RS485
Depth Rating	750m (2,460ft)
Maximum Diameter	56mm (2.20 inches)
Maximum Height	76mm (2.99 inches)
Weight in Air	225g (7.9oz)
Weight in Water	70g (2.5oz)

Ref: EDS-USB-001.3

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Website: www.tritech.co.uk

Marketed by:

innovative underwater technology

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Micron DST Sonar

Ultra Compact CHIRP Digital Sonar

Features

- Extremely compact - our smallest sonar yet
- Digital CHIRP system
- Full software functionality
- True acoustic zoom
- Instant scan reversal and sector scan options
- Inverted mode operation
- Hard boot protection for transducer
- Cost effective and reliable
- Target size measurement
- 750m depth rating
- Simple to operate

Applications

- Small ROV obstacle avoidance and target recognition
- AUV guidance

If the new generation of very small and low cost ROVs are to develop their full potential it is essential they are equipped with the vital tools and sensors expected on larger ROVs.

Along with the camera, the most important sensor for any vehicle is its obstacle avoidance sonar. The all new Tritech Micron DST (Digital Sonar Technology) sets new standards in compact sonar technology. It is the smallest digital CHIRP sonar in the world. CHIRP technology dramatically improves the range resolution compared with conventional sonars - it is a feature normally associated with much larger, more expensive systems.

Based on experience gained from Tritech's world class range of SeaKing and SeaPrince sonars, the Micron DST incorporates the most advanced acoustic features and software available today. The sonar can be controlled by a customer supplied PC or laptop and it can be configured for either RS232 or RS485 protocols. Micron DST has an auxiliary port to allow it to interface with other Tritech sensors.

This sonar incorporates the very latest surface mounted digital electronics and many software features normally found only on full sized commercial systems. Tritech believe that although the Micron DST is small in both size and cost it should offer the full range of functionality expected from a professional product.

The ROV survey may result in potential impacts to the marine environment. Potential impacts include hydrocarbon spills and ship strike, harassment, and acoustic effects on sensitive marine life. Ship strikes and harassment could occur while the survey vessel is progressing through the survey area with ROV deployed or during vessel transit. Acoustic effects could occur while the ROV navigational sonar is operating.
The following oil spill and marine wildlife contingency plan is provided to serve as the guidance document used during the ROV survey in order to minimize any and all of the potential effects.

SECTION III. OIL SPILL CONTINGENCY PLAN

The release of hydrocarbons (fuel, lubricants, hydraulic fluid, etc.) into the marine environment can cause significant environmental damage. MBC and Zephyr Marine minimizes the chances of such releases to the extent possible. The vessel and ROV equipment will be maintained in accordance with manufacturer's specifications. Routine maintenance and inspections are conducted by the boat captain to monitor for unusual wear or indications of potential failure in all systems that may cause an accidental hydrocarbon spill.

The survey vessel is trailered, and all fueling is completed at a shore-side gas station while the vessel is on the trailer and out of the water where all spills can be easily contained with no release to an aquatic environment. No fueling of the survey vessel is allowed when the vessel is in the water. While fueling, absorbent pads (3M Type 156 Sorbent Pads) are placed to catch all possible spills. All spills are immediately cleaned using approved materials such as absorbent pads, fuel bibs, and cat litter. All absorbents will be disposed of in properly marked metal containers in accordance with Title 8 General Safety Orders Section 5545.

Training

Only trained personnel will be authorized to fuel the vessel. Training includes: proper filling of the vessel's fuel tank, correct deployment of absorbent pads around and under the fueling port, proper insertion of the flexible hose without fuel flowing out of the hose, stress the importance of focused attention on the fueling to monitor for spills so fueling may be stopped as soon as possible to minimize the spill, and the correct use of absorbent materials in addition to the absorbent pads for spills that exceed the deployed pads. Bilge blowers will be operated for 5-minutes after fueling.

Spill Cleanup Equipment Supply Storage

The survey vessel will maintain a stock of no less than 30 absorbent pads and no less than 30 sealable plastic storage bags to contain soiled pads stored near the helm for quick access by the boat captain. One box of rubber gloves and one pair of safety glasses will be stored with the absorbent pads. A fire extinguisher will be present at all times during fueling and on the vessels.

Notifications

All spills will be reported as soon as the spill is contained to MBC's project manager. The following information will be reported:

- Your name
- Location/Date/Time
- Type of fuel spilled and approximate volume of fuel spilled
- Current disposition of spill (ongoing/contained/cleaned up)
- Possible health hazard
- Disposition of materials used to clean up spill
- Cause of spill, if known

MBC will, as needed, notify the appropriate local, state, and federal authorities as well as brief the company's president. Any further legal obligations and responsibilities will be handled by MBC's president and/or his designee.

SECTION IV. SENSITIVE SPECIES MONITORING AND MITIGATION PLAN

Relevant Regulations

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) prohibits the take of any marine mammal within the waters of the United States, defining "take" as: *harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal. This includes, without limitation, any of the following: The collection of dead animals, or parts thereof; the restraint or detention of a marine mammal, no matter how temporary; tagging a marine mammal; the negligent or intentional operation of an aircraft or vessel, or the doing of any other negligent or intentional act which results in disturbing or molesting a marine mammal; and feeding or attempting to feed a marine mammal*."

The 1994 amendments to the MMPA further define harassment as "any act of pursuit, torment, or annoyance which has the potential" to: (A) "injure a marine mammal or marine mammal stock in the wild", or (B) "disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering." Sections 101 and 102 of the MMPA prohibit intentional killing or harassment of marine mammals but allow incidental contact in the course of normal vessel operations.

Endangered Species Act

The portions of both the Federal and California Endangered Species Act (ESA) that pertain to geophysical surveys specifically prohibit (1) the take of organisms listed under the ESA and (2) damage to their critical habitat. Several whales and sea turtles common to southern California are listed under the ESA, which are described in the Species Summary below.

Potentially Affected Marine Species

Whales

Several species of whale are known to occur in the Southern California Bight and are therefore potentially impacted by offshore geophysical surveys (Table 1). With the exception of the gray whale and blue whale, few whale species are reasonably likely to occur within the nearshore zone where the survey will be completed. Most whale species have predominant distributions and Southern California Bight habitat well offshore of the 20-m isobath (the greatest offshore depth for the survey). Gray whales transit through the Southern California Bight near the coast with their seasonal migrations occurring in the winter and spring.

TABLE 1. WHALES KNOWN TO OCCUR IN THE SOUTHERN CALIFORNIA BIGHT (SCB) AND THEIR MOST COMMON PROXIMITY TO THE COAST (HABITAT), KNOWN SEASONALITY IN THE AREA, AND POTENTIAL FOR IMPACT FROM GEOPHYSICAL SURVEYS.

Whale Species	SCB Habitat	SCB Seasonality	Potential For Impact
Gray whale (*Eschrichtius robustus*)	Nearshore	Fall-Spring	Possible/Unlikely
Blue whale (*Balaenoptera musculus*)	Nearshore to Offshore	Summer	Possible/Unlikely
Fin whale (*B. physalus*)	Offshore	Summer	Unlikely
Sei whale (*B. borealis borealis*)	Offshore	Fall-Spring	Very Unlikely
Humpback whale (*Megaptera novaeangliae*)	Offshore	Fall-Winter	Very Unlikely
Sperm whale (*Physeter macrocephalus*)	Far Offshore	Spring-Fall	Very Unlikely
Minke whale Balaenoptera acutorostrata	Offshore	Unknown	Very Unlikely
Bryde's whale Balaenoptera brydei	Offshore	Unknown	Very Unlikely

Blue whales are less common in the Southern California Bight than gray whales. Unlike gray whales, blue whales seasonally occur in the summer within the Southern California Bight and are therefore more likely to occur in the survey area than gray whales. In any regard, whales of any species are not likely to enter the protection zone (defined in the Marine Biological Resources Protection subsection). All whales common to southern

California are protected under the MMPA and the ESA, except the gray whale which has been de-listed from the ESA.

Dolphins (various species)

Several species of dolphin occur along the southern California coast with varying frequency. Pacific white sided (*Lagenorhynchus obliquidens*), common dolphins (*Delphinus* spp.) and bottlenose dolphin (*Tursiops truncatus*) are the most commonly encountered. Short-finned pilot whales (*Globicephala macrorhynchus*), Risso's dolphin (*Grampus griseus*) and false killer whales (*Pseudorca crassidens*) are less commonly encountered but occasionally occur in Santa Monica Bay. Due to their swimming ability, potential geophysical survey activities pose little real threat to healthy individuals. All dolphins common to southern California are protected by the MMPA, but not ESA.

California Sea Lion (*Zalophus californianus*)

Abundance and Description in the Area: California sea lions are the most common pinniped (seals and sea lions) in southern California. They are present, often in large numbers, throughout bays, harbors, and coastal waters of southern California. California sea lions can be easily distinguished from the other common pinniped of the area, Pacific harbor seal (*Phoca vitulina*), by the presence of an external ear flap. It is present on California sea lions and absent on Pacific harbor seals. There is additional concern over the increasing frequency of sick and injured animals in southern California due to malnutrition and domoic acid poisoning. Behavior of these individuals can be more erratic and unpredictable, and more suspect to further injury than their healthy counterparts. California sea lions are protected under the MMPA, but not the ESA.

California sea lions are present along the California coast year-round. Curious by nature, they are commonly observed approaching boats and hauling out on any physical structure they can, including docks, boats, buoys, barges, etc. California sea lions are excellent swimmers with outstanding underwater agility. Their curious nature does, however, expose them to risk. It is expected that the California sea lions will be capable of evading the geophysical survey vessel, but attention should be paid to ensure no animals are affected. Sick or injured individuals will require greater scrutiny.

Pacific Harbor Seal (*Phoca vitulina*)

Abundance and Description in the Area: Pacific harbor seals are typically less abundant than California sea lions. As their name implies, Pacific harbor seals are more commonly observed in the bays and harbors in southern California than along the open coast. When observed along the open coast, Pacific harbor seals are more common in the nearshore waters than offshore. Pacific harbor seals are typically smaller than California sea lions, with black or charcoal coat mottled with white patches, in addition to the lack of an ear flap.

Pacific harbor seals are present year-round in southern California. Unlike California sea lions, Pacific harbor seals are not as naturally curious, however they have been known to approach boats seeking food. They are skilled swimmers and would be capable of evading the geophysical survey vessel and activities. Sick or injured individuals will require greater scrutiny.

Northern Elephant Seal (*Mirounga angustirostris*)

Elephant seals are rarely observed in the nearshore waters of Southern California, but individual animals might be observed by monitors at the site. Elephant seals exhibit extreme sexual dimorphism in size; males grow to 14' and 5,000 pounds, while females grow to 11' and 1,400 pounds. Female elephant seals forage in the open ocean, while male elephant seals forage along the continental shelf. Elephant seals spend most of their time at sea, and usually only come to land to give birth, breed, and molt. These activities occur at rookeries on offshore islands and remote mainland beaches, none of which are located in Santa Monica Bay. Elephant seals are skilled swimmers and should be capable of evading any adverse effects from the sonar survey, but sick or injured individuals will require greater observations.

Southern Sea Otter (*Enhydra lutris*)

Sea otters are rarely observed in Southern Californa but it is possible that an individual sea otter could enter the Protective Zone around the survey area. Sea otters are protected by both the MMPA and the ESA. Sea otters are skilled swimmers and should be capable of evading any adverse effects from the sonar survey, but sick or injured individuals will require greater scrutiny.

Sea Turtles (various species)

Four sea turtle species have been observed in southern California: green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), Olive Ridley sea turtle (*Lepidochelys olizacea*) and loggerhead sea turtle (*Caretta caretta*). All are listed as either threatened or endangered under the Federal ESA. The San Gabriel River has been recently identified by the National Marine Fisheries Service (NMFS) as the site of a growing population of green sea turtles. This is in addition to a known population in San Diego Bay. Loggerheads, leatherbacks, and Olive Ridley sea turtles are uncommon in southern California, but they have been observed.

Sea turtles make extensive spawning migrations. Green sea turtles have been observed in both the summer and winter, with more sporadic observations of the remaining species. The Gulf of California and all along the Baja Peninsula are prominent spawning grounds for most sea turtles, but ongoing research by NMFS and academic researchers suggests some individuals may be residing in southern California.

Sea turtles are relatively slow moving and capable of maintaining extended submerged periods. Their typically dark coloration, low profile, and swimming abilities can make them difficult to observe at a distance. This difficulty in identifying sea turtles provides

for greater opportunity for accidental take during a survey. Therefore, care should be taken to monitor for their presence and once sighted, extreme caution should be used to ensure no take occurs. This includes temporarily halting all activities once an animal has been spotted within 600 meters (m) of the survey area, the protection zone listed for sonar surveys in the California State Lands Commission's Data Collection Guidelines for Marine Wildlife Monitors (Appendix 2). Activities may resume if the animal has been observed swimming away from the survey area or no sightings have been made for 60 minutes.

Marine Biological Resources Protection

MBC and Weston will provide the following environmental compliance during the ROV survey:

1. A National Marine Fisheries Service (NMFS) approved marine mammal observer provided by MBC shall conduct appropriate training to Weston personnel. The training session will be completed prior to survey and will provide appropriate training to enable Weston personal scheduled to be on the survey vessel complete the tasks of marine wildlife monitor. No protection zone is needed while using the ROV's scanning sonar because its operational frequency (≥ 200 kHz) is above the known functional hearing range of marine mammals and sea turtles, and only one observer is required. The marine wildlife observer will scan the transit and survey area for marine wildlife, and the vessel captain and ROV operators will be advised to take precautions to avoid collision or entanglement of wildlife if necessary.

2. Survey activities shall be temporarily stopped as soon as can be safely achieved if a sea turtle or non-pinniped marine mammal is sighted on a potentially intersecting course with the survey vessel. The survey may resume only when the animal has safely transited away from the vessel's course. The vessel's crew will make no effort to divert the animal, but rather wait for the animal to proceed naturally. Pinnipeds are expected to commonly swim around the vessel. Vessel speeds while conducting an ROV survey are 1-2 knots, which are presumably slow enough for pinnipeds to easily evade the vessel. No surveying will be conducted near pinniped haul out sites.

Monitoring Plan

Role of Marine Observers

MBC staff members have been approved as marine mammal observers by the National Marine Fisheries Service (NMFS). MBC will assign one (1) NMFS-approved marine mammal observer to conduct training with assigned personnel who will be responsible for marine wildlife observation on the survey boat. The marine wildlife monitor will be onsite during all survey activities. Training will consist of PowerPoint presentation MBC has utilized during prior Marine Wildlife Observer training sessions, as well as documentation that the appointed observer views "Marine Species Awareness Training" presented on the Navy Energy Environmental YouTube channel.

The trained observer will, to the extent possible, act to prevent collisions with marine wildlife. The monitor will make observations from the best vantage point for observing marine wildlife, to be determined on survey day.

All sightings will be logged on the standard form included in Appendix 2. The form available in Appendix 3, in addtion to the collision reporting items listed below, will be completed, to the extent possible, in the event a sick or injured animal is sighted or if a collision has occurred. After completing the form, marine observers will report it to the proper agency. The USCG will be notified if the animal poses a threat to mariners, such as an injured or dead great whale in the work area. Contact information for the California Department of Fish and Wildlife, National Marine Fisheries Service, and USCG are included in Table 2.

TABLE 2. CONTACT LIST FOR MARINE WILDLIFE MONITORING. ALL PROJECT ASSETS IN THE AREA WILL MONITOR VHF CHANNEL 13, 16, OR 67.

Company	Staff/Position Name	Mobile Phone
DFW	Enforcement Dispatch Desk	562-598-1032
NMFS	Stranding Coordinator	562-980-4017
California State Lands Commission	Environmental Planning and Management	916-574-1938
USCG	VHF Marine Radio - Channel 16	

Marine Mammal Observers

MBC will provide one (1) NMFS-approved marine mammal observer to provide appropriate training to the survey observer. The NMFS-approved marine mammal observers will include one (1) of the following MBC personnel:

Robert Moore: NMFS-approved Marine Mammal Observer

Jennifer Rankin: NMFS-approved Marine Mammal Observer

Resumes for Mr. Moore, and Ms. Rankin are provided in Appendix 1.

The person who completes the marine wildlife observer training session will be responsible for completing all tasks associated with marine observers outlined in this document.

Pre-Survey Notifications

A Notice to Mariners will be submitted to the USCG prior to the ROV survey. The Notice to Mariners will provide information regarding proposed activities and coordinates of the survey location. In addition, Weston will notify the local harbormasters' office and dive shops prior to the start of survey activities. Copies of the

local Notice to Mariners and announcements to local marinas and dive shops are provided in Appendix 5.

The geophysical survey notification list for the multibeam sonar survey will include:

- Local Notice to Mariners was sent on June 22, 2018 to the Commander, 11th Coast Guard District, Building 50-2 Coast Guard Island Alameda, CA 94501-5100. E-Mail: d11Inm@uscg.mil

- Notification was sent on June 22, 2018 to Deputy Godfrey (regodfre@lasd.org) of the Marina Del Rey Harbor Patrol. Deputy Godfrey will forward the "Local Notice to Mariners" to the Santa Monica Harbor Patrol and the Santa Monica Lifeguards.

- Notification was sent on June 22, 2018 to Mr. Ricky Rivera (ricky@kingharbor.com) at King Harbor Marina. Mr. Rivera will forward the information to the Harbor Patrol and local lifeguards.

- Notification was sent on June 22, 2018 to Scuba Haus Dive Shop, Santa Monica, CA. E-mail address: (Rocky@scubahaus.com).

- Notification was sent on June 22, 2018 to Ocean Adventures Dive Co., Santa Monica, CA. E-mail address: dive@scubadivela.com

- Notification was sent on June 22, 2018 to Eco Dive Center, Santa Monica, CA. E-mail address: scuba@ecodivecenter.com

- Notification was sent on June 22, 2018 to Malibu Divers, Malibu CA. Email address: info@malibudivers.com

Three days prior to the initiation of the survey, Weston will contact National Oceanic and Atmospheric Administration (NOAA) Fisheries Long Beach office staff and local private whale-watching operations to acquire information on the recently-observed composition and relative abundance of marine wildlife in the survey area. That information will be conveyed to the vessel crew and survey team prior to departure for the survey area.

Marine Protected Areas and Pinniped Haul Out Sites

No marine protected areas or pinniped haul out sites or rookeries are located near the survey area.

Fishing Gear Clearance

In addition to submitting the required Notice to Mariners that will alert commercial fishers of pending survey activities, the survey vessel will traverse the proposed survey corridor to note and record the presence of deployed fishing gear. If fishing gear is observed, the location of fishing gear (buoys) and license number indicated on the gear will be noted, and the California Department of Fish and Wildlife (CDFW) Southern District Enforcement Office will be contacted. No survey lines will be completed within 30 m (100 ft) of any observed fishing gear. The survey crew will not remove or relocate any fishing gear; removal or relocation will only be accomplished by the owner or by an authorized CDFW agent.

The following agencies will be contacted if fishing gear is located within the survey area:

- Enforcement Dispatch Desk for the California Department of Fish and Wildlife, Southern District: (562) 598-1032
- California Department of Fish and Wildlife, Marine Division: (831) 649-2870
- Joint Oil Fisheries Liaison Office (JOFLO): (805) 963-8819

Survey Monitoring and Mitigation Measures

During the data collection efforts, the marine mammal observer will use binoculars to observe the water surface in the general survey area while located at a high vantage point onboard the survey vessel. As specified in the CSLC-issued geophysical survey permit, surveys utilizing equipment with an operating frequency greater than 200 kHz will not require a designated safety zone. The marine mammal observer will have the authority to recommend halting data collecting operations if marine wildlife is observed reacting negatively to the survey-related activities.

The marine mammal observer will also have the authority to recommend continuation or cessation of operations during periods of limited visibility based on the observed abundance of marine wildlife. Periodic reevaluation of weather conditions and reassessment of the continuation/cessation recommendation will be completed by the marine mammal observer. With the incorporation of these measures, and additional mitigation measures listed below, the proposed survey activities have a low potential of injury and/or disturbance to marine wildlife. The following operation-related actions will be implemented in accordance with CSLC permit requirements:

1. During operations, if an animal's actions are observed to be "irregular" the marine mammal observer will have the authority to recommend the cessation of data collection until the animal moves out of the survey Area;

2. The marine wildlife observer should alert the vessels captain to avoid crossing the anticipated path of marine wildlife wherever possible;

3. The marine wildlife observer will have the authority to recommend halting data collecting operations if a large concentration of diving birds/sea birds is observed in the immediate vicinity;

4. Unless the safety of the vessel or crew would be in jeopardy, avoidance measures instituted during vessel transit will also be implemented during geophysical data collection; and

5. Minimizing the amount of umbilical deployed (without jeopardizing the ROV survey equipment or vessel.

Within the implementation of these procedures, no impacts associated with vessel transit or ROV operation to marine wildlife are expected.

OBSERVATION RECORDING

The marine mammal observer will record observations on pre-printed forms and will photo-document observations whenever possible. The completed forms will be used as the primary data sources for the post-survey report which will be provided to the CSLC and/or other agencies, if requested.

Collision Response

The Marine Mammal Protection Act (MMPA) requires that collisions with or other survey-related impacts to marine wildlife will be reported promptly to the National Marine Fisheries Service (NMFS) Stranding Coordinator.

If a collision or impacts to marine wildlife occurs, the vessel will stop, if safe to do so. However, the vessel is not obligated to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel will then communicate by radio or telephone all details to MBC's office in California. Upon receiving notice of collision, MBC will notify the following Federal and State agencies:

- National Marine Fisheries Service, Long Beach, CA. Attention: Justin Viezbicke Stranding Coordinator. Telephone: (562) 980-3230.
- California Department of Fish and Wildlife Los Alamitos, CA. Attention: Enforcement Dispatch Desk. Telephone: (562) 598-1032.
- California State Lands Commission, Sacramento, CA. Attention: Division of Environmental Planning and Management. Telephone: (916) 574-1938.

The vessel operator, with guidance from the marine mammal observer, must document the conditions under which the accident occurred, including the following:

- Location (latitude and longitude) of the vessel when the collision occurred;
- Date and time of collision;
- Speed and heading of the vessel at the time of collision;
- Observation conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog) at the time of collision;
- Species of marine wildlife contacted (if known);

- Whether the marine mammal observer was observing for marine wildlife at the time of collision; and
- Name of vessel, vessel owner/operator (the company), and captain or officer in charge of the vessel at time of collision.

It is unlikely that the vessel will be asked to stand by until NMFS or CDFW personnel arrive; however, this will be determined by the NMFS Stranding Coordinator. According to the MMPA, the vessel operator is not allowed to aid injured marine wildlife or recover the carcass unless requested to do so by the NMFS Stranding Coordinator.

Although NMFS has primary responsibility for marine mammals in both State and Federal waters, the CDFW will also be advised that an incident has occurred in State waters affecting a protected species.

Monitoring Report

A technical report will be prepared documenting the Project activities, a summary of observations and any encounters with marine wildlife, and subsequent avoidance actions taken during the survey. The report will be submitted to the California State Lands Commission within two weeks after completion of each field data collection.

BIBLIOGRAPY

Zykov, M. 2013. Underwater Sound Modeling of Low Energy Geophysical Equipment Operations. JASCO document 00600, Version 2.0. Technical Report by JASCO Applied Sciences for CSA Ocean Sciences Inc.

APPENDIX 1

RESUMES FOR MARINE MAMMAL OBSERVERS ABOARD SURVEY VESSELS.

JENNIFER L. RANKIN **MARINE MAMMAL OBSERVER**

EXPERIENCE SUMMARY

Over ten years of experience in ecological monitoring, both terrestrial and marine. Proficient in data collecting and analysis of nearshore marine surveys, especially GIS-based spatial analysis. Serves as MBC's principle GIS analyst and technician in charge of map preparation and analysis. Received certification as Marine Mammal Observer from National Marine Fisheries Services in 2014.

EDUCATION

B.S., Forestry; minor in Environmental Ethics, Humboldt State University, 2003.
Certificate, GIS, California State University Fullerton Extended Education, 2008.

PROFESSIONAL HISTORY

MBC Applied Environmental Sciences. Technician, 2007 to present; Associate Technician, 2007 to 2007; Assistant Technician, 2006 to 2007.

USDA Forest Service, Pacific Northwest Research Station. Forestry Technician May 2005 to November 2005.

USDA Forest Service, Rocky Mountain Research Station. Forestry Technician, June 2004 to October 2004.

USDA Forest Service, Stanislaus National Forest. Information Receptionist, 2002 to 2003.

PROJECT EXPERIENCE

Marine Mammal Monitoring. National Marine Fisheries Service-certified marine mammal observer monitoring construction projects in the Ports of Los Angeles and Long Beach to ensure no impacts to marine mammals as a result of construction activities and associated sound produced.

Kelp Consortium. Image analyst and GIS technician charged with geoprocessing aerial photographs of coastal California from Santa Barbara to the US-Mexico border. Compiles images of giant kelp beds throughout the area, generates map series, and calculates kelp canopy area by California Department of Fish and Game kelp bed designation using Spatial Analyst in the desktop ArcGIS 10.1platform.

Coastal Generating Station NPDES Monitoring Studies. Technician involved with data collection and report preparation for biannual NPDES water quality monitoring at 11 coastal generating stations from Ventura County to San Diego. Clients included the Los Angeles Department of Water and Power, Southern California Edison Company, AES Corporation, Houston Industries, NRG Energy, Inc., Reliant Energy, and Sempra Energy. Monitoring responsibilities sediment and infauna collection using van Veens, intertidal and subtidal surveys.

ROBERT H. MOORE **SENIOR SCIENTIST**

EXPERIENCE SUMMARY

Over thirty-five years of experience studying marine environments throughout southern California, specializing in water quality monitoring and water and sediment chemistry sampling. Mr. Moore is also experienced in benthic, fish, and plankton sampling. Extensive field experience with fish and invertebrate taxonomic identification and marine mammal observation. Expertise in coastal kelp bed surveys and restoration, and eelgrass surveys and restoration in lagoons, harbors, and bays. Conducted numerous surveys for the invasive alga *Caulerpa*. Experienced in the use of multiple types of sampling equipment, field equipment calibration and maintenance, data analysis, and report preparation. Currently serving as Project Manager and Technical Writer on MBC projects and reports.

EDUCATION

B.A., Biology, University of California, Los Angeles, 1977

PROFESSIONAL HISTORY

MBC *Aquatic Sciences*. Senior Scientist 1989 to present.
Occidental College. Research Associate/Environmental Biologist, 1980-1989.

PROJECT EXPERIENCE

Dredge Water Quality Monitoring. Project Manager and Field Director for water quality monitoring and sediment chemistry sampling for dredge projects for the City of Long Beach, Port of Los Angeles, Port of Long Beach, and in the Port of San Diego for the U.S. Navy and City of San Diego. Water quality monitoring was conducted during dredge projects to fulfill regulatory requirements for both physical and chemical analyses, and writing project weekly and summary reports. Conducted specialized dredge water quality monitoring during the Long Beach Naval Base Redevelopment for the Contaminated Sediments Task Force.

Pre-dredge Sediment Characterization. Managed and conducted pre-dredge sediment collection and characterization for physical and chemical parameters via vibracore and grab samplers at multiple sites in Long Beach Harbor. Prepared both Sampling and Analysis Plans and Sediment Characterization Reports. Attended Contaminated Sediments Task Force meetings in support of the characterization reports.

Fish and Marine Mammal Monitoring. Project Manager for monitoring for the presence and any effects during pile driving on fish and marine mammals for both wharf and marina construction projects in Los Angeles and Long Beach Harbors. Assisted in the modification of monitoring requirements with the National Marine Fisheries Service and the Army Corps of Engineers when project implementation varied from project environmental planning on multiple projects. Project Manager and field observer for marine mammal monitoring during barge transport for the San Onofre Steam Generator Replacement Project.

Stormwater Monitoring. Project Manager and Field Director for non-point source stormwater surveys collecting samples from receiving waters, end-of-pipe outfalls, and automated water samplers for the Port of Long Beach. Prepared Sampling Plans and Annual Monitoring Reports for submittal to regulatory agencies. Conducted collection and analysis of physical and chemical parameters of stormwater discharges into Areas of Special Biological Significance along the Newport Beach coastline. Conducted monitoring for water quality and chemistry under a Construction General Permit.

Industrial Wastewater Monitoring. Project Manager and Field Director for Industrial Wastewater Discharge monitoring via automated water sampler at Colorado Lagoon for the City of Long Beach.

Radiological and NPDES Monitoring for San Onofre Nuclear Generating Station. Project Manager and Field Director for monthly collection of ocean water samples, and semi-annual collection of kelp, sediment, and tissue samples of mollusk, crustacean, and fish species. Project requirements also include quarterly water quality and fish population surveys, and tri-annual kelp density surveys, and an Annual Monitoring Report written and submitted to the San Diego Regional Water Quality Control Board.

Eelgrass Habitat Restoration. Field Director for eelgrass habitat restoration projects in harbors, bay, and estuaries throughout southern California. Assisted in the design and implementation of eelgrass surveys, restoration projects, and monitoring programs. Mr. Moore has participated in very large eelgrass transplant projects including over 10 acres in Mission Bay and more than 20 acres in San Diego Bay. To date, MBC has successfully planted over 1,500,000 ft^2 of eelgrass to the bays and harbors of southern California. Past projects include: eelgrass restoration in Mission Bay for the City of San Diego, eelgrass restoration in Convair Lagoon resulting from PCB contamination, an extensive eelgrass restoration program for the U.S. Navy at the U.S. Naval Amphibious Base, a multi-year eelgrass restoration and monitoring study off the south arm of the Embarcadero Marine Park in San Diego Bay, a multi-year eelgrass restoration and monitoring program at Sunroad Marina on Harbor Island, San Diego, and eelgrass restoration programs in Alamitos Bay, Newport Harbor, Oceanside Harbor, and San Dieguito Lagoon.

Kelp Bed Monitoring and Restoration. Field Director for giant kelp habitat monitoring in Orange and San Diego Counties and restoration projects along the Orange County Coastline for California Department of Fish and Game resulting in 10 acres of kelp restored. A separate restoration project as mitigation for private industry resulted in about 20 acres of kelp restored.

Coastal Generating Station NPDES Monitoring Studies. Project Manager and Field Director for quarterly and biannual NPDES monitoring studies at 11 coastal generating stations from Ventura County to San Diego County. Clients include the Los Angeles Department of Water and Power, Southern California Edison Company, AES Corporation, Houston Industries, NRG Energy, Inc., Reliant Energy, and Sempra Energy. These studies, ongoing since 1977, include water

quality measurements, kelp density, sediment sample collection and analysis, intertidal and subtidal surveys, fish and macroinvertebrate trawls, fish transects, and benthic infauna and macrobiota studies. The results of all analyses and trends are presented in annual monitoring reports to the regulatory agencies.

Fish Return System Studies. Environmental Biologist for fish return system studies at the San Onofre Nuclear Generating Station. Responsible for setting Fyke nets using scuba, collecting and identifying fish caught, and recording observations of fish behavior. Also directed deployment of 1,000-foot purse seine net, and collection and identification of fish caught.

PROFESSIONAL AFFILIATIONS

Southern California Academy of Science

RELATED PROFESSIONAL ACTIVITIES

Certified Open Water Diver
American Red Cross CPR/First Aid Certified
Certified *Caulerpa* Surveyor

PUBLICATIONS

Robert Moore, Eric Miller, Milton Love. 2011. Southern occurrence of the sand sole (*Psettichthys melanostictus*). Bull. Southern California Academy of Sciences 110(3). p184-188.

Robert Moore and Kevin Herbinson. 2002. First record of the armed grunt, *Conodon serrifer* (Haemulidae) in southern California. Calif. Dept. of Fish and Game 88(4). p 178-180.

Robert Moore. 1991. First record of the leather bass (*Epinephelus dermatolepis*, Boulenger) in southern California. Calif. Dept. of Fish and Game 77(3). p 145-147.

Milton S. Love, Meenu Sanhu, Jeffrey Stein, Kevin T. Herbinson, Robert H. Moore, Michael Mullin, John S. Stephens, Jr. 1989. Analysis of fish diversion efficiency and survivorship in the fish return system at San Onofre Nuclear Generating Station. NOAA Technical Report NMFS 76. 16 p.

Dan McCoy—Surface Water Quality Monitoring

Education

M.S., Zoology, Louisiana State University

B.S., Biology, University of Notre Dame

Certification(s)/License(s)/Registration(s)

- *Scientific Diver, PADI #9907544093*
- *California Resident Scientific Collecting Permit #SC-008059*

Relevant Project Experience

Los Angeles County Flood Control District ▪ Marina del Rey Coordinated Integrated Monitoring Program (CIMP) ▪ Marina del Rey Harbor ▪ CA ▪ Assistant Project Manager. Managed various field sampling and reporting aspects of the CIMP. Collected water samples, mussel tissues, and fish tissue samples throughout the harbor to measure and help identify pollutant sources. This data will be used to assess chemical, physical, and biological impacts of discharges from the MS4 to receiving waters. An assessment of compliance with receiving water limitations and water quality-based effluent limitations established to implement TMDL wet weather and dry weather waste load allocations will also be performed.

Malibu ASBS Special Protections Monitoring, Los Angeles Country Department of Public Works, Project Manager. Managed a stormwater runoff monitoring program in Malibu that was part of a region-wide ASBS program to assess pollutant loads carried in stormwater runoff to ASBS. This project involved stormwater sampling at 21 beach outfalls and 2 ocean receiving water locations. Samples were collected over the course of three storm events and analyzed for chemical composition and toxicity to marine organisms. Concentrations in the ocean receiving water were compared to natural water quality criteria and pollutant loads were calculated for each storm event. Recommendations for reducing anthropogenic inputs were included in the Final Report.

Los Angeles County Department of Public Works ▪ Oxford Retention Basin Post-Construction Baseline Monitoring▪ Marina del Rey ▪ CA ▪ Assistant Project Manager. Managed various field sampling and reporting aspects of the tiered Monitoring and Reporting Program. Measured water quality and collected water samples at various stations throughout the Basin during dry and wet weather to document ambient conditions and identify if conditions were improving relative to those seen in pre-construction monitoring. Collected sediment samples in the basin to assess sediment conditions and to determine if sediment from the Basin was mobilizing to the harbor through the tide gates in compliance with the Marina del Rey Harbor TMDL. Submerged aquatic vegetation and algal surveys were performed to document existing biological conditions. This data will be used to meet the monitoring requirements of the Project's various grants and permits and to evaluate the effectiveness of the Project in improving water and sediment quality, as well as enhancing the physical habitat and biological community residing within Oxford Basin.

County of San Diego and County of San Diego Copermittee Water Quality Monitoring and Reporting Program, San Diego, CA. Responsible for field collection of water quality sampling at mass loading stations throughout San Diego County during wet weather season to meet NPDES permit requirements.

Qualifications Summary

- Over 16 years of experience conducting environmental resource assessments.
- Experienced in conducting and leading large teams for biological surveys, intertidal habitat surveys, toxicity assessments, sediment characterization studies, stormwater monitoring projects, bacterial source tracking studies, environmental impact assessments, dive surveys, and submerged aquatic vegetation surveys.
- Participated in Bight 2008 fish trawls; performed otter trawl sampling and sediment sampling on a near-daily basis while working at Orange County Marine Institute in Dana Point.

Additionally, led field team in collection of sediment from lagoons, bays, and estuaries for Ambient Bay and Lagoon Program and compared results of chemistry, benthic infauna community analyses, and toxicity testing to sediment quality objectives. Assisted in writing SAPs, QAPPs, and draft and final reports for County of San Diego projects.

National Park Service ▪ Jean Lafitte National Historical Park and Preserve Submerged Aquatic Vegetation Natural Resource Damage Assessment ▪ Marrero ▪ LA ▪ Assistant Project Manager. Managed field sampling and reporting aspects of a Natural Resource Damage Assessment. Submerged aquatic vegetation, water, and sediment samples were collected from 44 sites in Jean Lafitte Barataria Preserve to assess impacts from increased freshwater flow through the Park as a response to the Deep Water Horizon Oil Spill in the Gulf of Mexico. To date, a total of five SAV surveys have been conducted each fall and spring since the Deepwater Horizon Mississippi Canyon 252 Oil Spill occurred in May 2010. All field work was performed following NRDA sampling and analysis protocols and the Mississippi Canyon 252 Incident Submerged Aquatic Vegetation Work plan.

Marine Resource Assessment—Sylmar Ground Return System Undersea Electrode ▪ Santa Monica Bay ▪ CA ▪ Project Manager. The objective of this study was to determine the potential impacts of installing a new undersea ground return cable segment for the Sylmar Power Station on marine life, humans, and surroundings within Santa Monica Bay. Existing biological resources and activities within the Area of Potential Effect were assessed through video surveillance, direct observation, sample collection and analysis, and a literature review. Surveys consisted of visual assessments of the two proposed cable route options as well as the footprint of an electrode array by divers and a ROV to document habitat quality and record observed species; sediment sampling to determine benthic community structure, chemistry, toxicity, and physical properties; water sampling to determine water quality near the seafloor; and physical water quality assessments using a CTD sensor to collect water quality profiles at each of 16 sampling locations. Data collected from the field surveys were compared to findings of previous studies at the site and regional studies characterizing the biota within Santa Monica Bay. The report served as a primary feasibility assessment for an Environmental Impact Report.

USACE ▪ Santa Barbara Harbor Dredged Material Evaluation for Beach Replenishment ▪ Santa Barbara ▪ CA ▪ Project Manager. Managed all aspects of sediment sampling project within Santa Barbara Harbor to determine if proposed dredged material would be suitable for use as beach replenishment. Sediment was collected and analyzed from five areas within the harbor and one control area outside of the harbor. Dive survey was performed for *Caulerpa taxifolia*.

City of Newport Beach ▪ Newport ASBS Protection and Restoration Monitoring Plan ▪ CA ▪ Assistant Project Manager. Assisted project manager in conducting multiple studies including: a public use impact study, an intertidal monitoring study, a rockweed restoration study, a cross contamination modeling study, a water quality monitoring study, a kelp study, and a mussel bioaccumulation study to assess the condition of the ASBS' intertidal community and recommend ways to reduce anthropogenic impacts.

Marine Resources Assessment for the Sun Road Hotel/Marina Harbor Island ▪ San Diego ▪ CA ▪ Project Manager. Evaluated marine biological resources and existing water conditions for a Draft Environmental Impact Report (DEIR). Managed scientific dive team; conducted Essential Fish Habitat and *Caulerpa taxifolia* surveys, and collected sediment core samples. Wrote final report that evaluated two alternatives for construction.

Encina Wastewater Authority ▪ Encina Kelp Stand Study as part of NPDES Monitoring Program for Encina Power Plant ▪ Carlsbad ▪ CA ▪ Marine Biologist. Catalogued benthic invertebrates, fish, and marine algae along transects at four locations offshore from Carlsbad, CA as part of the NPDES permit for Encina Power Station. Temporal changes in flora and fauna assemblages in the areas surrounding the Encina Power Plant's warm water discharge were monitored twice yearly.

APPENDIX 2

OFFSHORE SPILL RESPONSE PLAN

MBC SPILL RESPONSE PLAN

FOR OFFSHORE OPERATIONS

Introduction: This Spill Response Plan (SRP) is in support of MBC's offshore operations. The purpose of this SRP is to present the procedures and protocols that will be utilized in the event of a spill resulting from offshore survey activities.

For purposes of this SRP, a minor oil spill is defined as five barrels or less and a major spill is defined as more than five barrels.

Spill sources of hydrocarbons are limited to leakage or spillage of fuel or lubricants from vessels or marine equipment used during offshore survey operations, with all volumes carried below the threshold for a major spill. The 26' survey vessel TATI B will be used to conduct offshore work.

While the vessel is considered a potential spill source, the likelihood of a spill is remote because a spill could only occur if the hull of the vessel is breached in the area of the tanks or if a vessel sinks. The vessel is constructed with multiple watertight compartments to isolate flooding and reduce the risk of sinking should their hulls be punctured.

The vessel and equipment refueling will be conducted using Best Management Practices (BMPs) and will be performed in a manner best suitable to minimize the potential for fuel spillage.

Spill Response Team: MBC's personnel on-site are responsible for reporting, containment, and cleanup of any small spills using onsite equipment and procedures. The onsite team will be supervised by the vessel Captain.

Onsite Response Equipment: The onsite spill response team will have access to an appropriate quantity of absorbent pads, which will be maintained onboard. In the event of a spill, the Field Leader will immediately cease project operations in order to apply sorbent pads.

Table 1 lists the minimum onsite spill response equipment that will be maintained onsite for emergency response of miscellaneous spills.

Table 1. Onsite Spill Response Equipment Inventory

Quantity	Equipment Type
30	3M Type 156 Sorbent Pads
30	Sealable Plastic Storage Bags

Notification: An important step in the response procedure is notification to others of an incident. Notification is essential to activate the response organizations, alert company management, obtain assistance and cooperation of agencies, mobilize resources, and comply with local, state, and federal regulations. The order of notification is based on the premise that those parties who can render assistance in controlling or minimizing the impacts of an incident should be notified before those that are remote from the incident. Table 2 presents a matrix for emergency Agency notification. The notification process encompasses the following categories:

- Emergency Agency notification
- Company notification/onsite spill response team activation
- Cleanup contractors (if required)
- Notification of other interested parties
- Periodic progress updates and reports (if necessary)

Table 2. Emergency Agency Notification Matrix

Type of Emergency	Agencies to be Notified	Telephone	Notification Criteria	Notification Time Frame	Information to Report
Spill to Land or Marine Waters	Marina del Rey Harbor Police	(310) 482-6031 VHF Radio 16	All spills to land or water	Immediately	1. Location of release or threatened release 2. Qty released 3. Type of spill 4. Your name & phone number
	USCG-LA/ Long Beach Marine Safety Office	(310) 521-3801 VHF Radio 16			
	California Department of Fish and Game/ OSPR	(888) 334-2258			
	California Office of Emergency Services	(800) 852-7550			
	National Response Center	(800) 424-8802			
	State Lands Commission	(562) 499-6312			
	California Coastal Commission	Ellen Faurot-Daniels, (415) 904-5285 (work) (415) 201-5792 (pager).			
	Oiled Wildlife Care Network	(530) 754-9035			
	Minerals Management Service	(805) 389-7775 or (805) 389-7550	Spill entering federal waters only		
Medical Emergencies	Fire Department/ Ambulance	**911**	Medical assistance and/or transport required	ASAP	1. Type of injury 2. Location 3. Condition 4. Action taken 5. No. of victims
	CalOSHA	(415) 737-2932		As required	

The Lempert-Keene Seastrand Oil Spill Prevention and Response Act (SB 2040) requires notification of the California Office of Emergency Services when oil spills occur or threaten to occur from facilities, vessels, or pipelines into California marine waters. The California Code of Regulations implementing SB 2040 requires that the specific information shown in Table 3 be given to the agencies when making notifications.

Table 3. Information Checklist

Name of reporter. Facility name and location Date and time of the spill
Cause (if known -- don't speculate) and location of the spill Estimate of the volume of oil spilled and the volume at immediate risk of spillage Material spilled (e.g., crude oil), and any inhalation hazards or explosive vapor hazards, if known Prevailing sea conditions: • Wave height • Size and appearance of slick • Direction of slick movement • Speed of movement, if known Prevailing weather conditions: • Wind speed • Wind direction • Air temperature Measures taken or planned by personnel on scene • For containment • For cleanup Current condition of the facility Any casualties? ☐ ***NOTE: When making reports, record the agency, name of person contacted, and the date and time of notification. Reporting of a spill shall not be delayed solely to gather all the information noted above.***

All actions, including agency notification, should be recorded on the vessel's log book. A regulatory agency address directory is provided in Table 4. Essential agency notifications are further assured by the California Office of Emergency Services and the National Response Center, since they will notify related state and federal agencies. If a spill impacts navigable waters, notification of the National Response Center is mandatory and normally results in simultaneous notification of the U.S. Coast Guard. However, it is recommended that a call be made to the local U.S. Coast Guard office in San Diego at (619) 278-7670.

Based on the spill trajectory analysis, if the spill is a threat to the shoreline, the appropriate fire department should also be contacted.

Table 4. Addresses of Regulatory Agencies

NATIONAL RESPONSE CENTER U.S. Coast Guard Headquarters 2100 Second Street SW Washington, D.C. 20593 **MINERALS MANAGEMENT SERVICE** Pacific OCS Regional Office & Camarillo District Office 770 Paseo Camarillo Camarillo, CA 93010 **U.S. COAST GUARD – LA/LONG BEACH MARINE SAFETY OFFICE** 1001 S. Seasjde Ave., BLDG 20 San Pedro, CA 90731 **U.S. DEPARTMENT OF TRANSPORTATION** 111 Grand Avenue, P.O. Box 23660 Oakland, CA 94623 **NATIONAL MARINE FISHERIES SERVICE** 650 Capital Mall Sacramento, CA 95814	**CALIFORNIA DEPARTMENT OF FISH AND GAME** **Office of Spill Prevention and Response (OSPR)** 1730 I Street PO Box 944209 Sacramento, CA 94244 **CALIFORNIA OFFICE OF EMERGENCY SERVICES** 2800 Meadowview Road Sacramento, CA 95832 **CALIFORNIA DIVISION OF SAFETY AND HEALTH** 1655 Mesa Verde Avenue, Room 150 Ventura, CA 93003 **CALIFORNIA STATE LANDS COMMISSION** 330 Golden Shore, Suite 210 Long Beach, CA 90802 **CALIFORNIA COASTAL COMMISSION** 45 Fremont, Suite 2000 San Francisco, CA 94105-2219

Company Notification: MBC requires that all emergencies be brought to the attention of corporate management and client. The vessel Captain or Field Leader will notify by radio or telephone appropriate corporate managers with an initial assessment of the extent and nature of the spill, and will activate additional company resources if necessary. The contact information for MBC is provided below:

D. Shane Beck, President	
Work:	714-850-4830
Cellular:	949-466-5029
E-Mail:	sbeck@mbcaquatic.com

Marine Spill Scenarios and Response Procedures for Minor Marine Spills: This scenario consists of minor spillage of oil or oily water (less than 5 barrels) from a vessel or deck equipment. Response will consist of deployment of sorbent pads that are stored on the vessels. Table 5 lists the response procedures for a minor marine spill.

Table 5. Minor Marine Oil Spill Response Procedures

Responsible Person	Action
Captain - Contractor	• Assess the spill size and type of material spilled. • Take action to contain the spill and prevent further spillage. • Inform the Project Superintendent as soon as possible as to the source of the spill, type of material spilled and status of control operations. • Maintain surveillance of source and oil slick. • Assist the onsite response team in implementing clean up procedures including deployment of sorbent pads and proper storage and disposal of oily debris and sorbent pads.
Field Leader – Contractor	• Account for all personnel and ensure their safety. • Determine if there is a threat of fire or explosion. • If a threat of fire or explosion exists, suspend all control and/or response operations until the threat is eliminated. • Assess the spill situation to determine the status of response operations, estimate spill volume, estimate speed and direction of oil slick movement and determine resource needs. • Notify the Project Manager.
Field Leader – Contractor	• Mobilize the onsite spill response team. • Notify appropriate agencies including: – Oceanside Harbor Police VHF 16, (76) 435-4000 – U.S. Coast Guard Marine Safety Office (510) 437-2943 – California Department of Fish and Game/OSPR (916) 445-0045) – National Response Center (800) 424-8802) – California Office of Emergency Services (800) 852-7550) – State Lands Commission (562) 499-6312) – Oil Wildlife Care Network (530) 754-9035 • Supervise response and clean up operations. • File written reports to appropriate agencies.

APPENDIX 3

DATA COLLECTION FORMS FOR

MARINE MAMMAL OBSERVERS

Marine Wildlife Observations Form

Date: _____ Monitor: _____

Time:	Latitude:	Longitude:
Weather:	Cloud Cover:	Glare:
Visibility:	Wind Speed:	Sea State:
Swell Height:	Survey Vessel Activity:	
Marine Wildlife Observations and Interactions:		

Time:	Latitude:	Longitude:
Weather:	Cloud Cover:	Glare:
Visibility:	Wind Speed:	Sea State:
Swell Height:	Survey Vessel Activity:	
Marine Wildlife Observations and Interactions:		

Page ___ of ___

Marine Environmental Variables Form

Date: _____ Monitor: _____

Time	Latitude	Longitude	Vessel Activity	Weather	Cloud Cover	Glare	Visibility	Wind Speed	Sea State	Swell Height	Comments

Page ___ of ___

APPENDIX 4

MARINE MAMMAL & REPTILE COLLISION REPORTING INSTRUCTIONS FORM

MARINE MAMMAL AND REPTILE COLLISION REPORTING

If a collision with a marine mammal or reptile occurs, the Permittee shall document the conditions under which the accident occurred, including the following:

1. Vessel location (latitude, longitude) when the collision occurred;
2. Date and time of collision;
3. Speed and heading of the vessel at the time of collision;
4. Observation conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog) at the time of collision;
5. Species of marine wildlife contacted (if known);
6. Whether an observer was monitoring marine wildlife at the time of collision; and
7. Name of vessel, vessel owner/operator, and captain officer in charge of the vessel at time of collision.

After a collision, the vessel shall stop, if safe to do so; however, the vessel is not obligated to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel will then immediately communicate by radio or telephone all details to the vessel's base of operations, and shall immediately report the incident. Consistent with Marine Mammal Protection Act requirements, the vessel's base of operations or, if an onboard telephone is available, the vessel captain him/herself, will then immediately call the National Oceanic and Atmospheric Administration (NOAA) Stranding Coordinator to report the collision and follow any subsequent instructions. From the report, the Stranding Coordinator will coordinate subsequent action, including enlisting the aid of marine mammal rescue organizations, if appropriate. From the vessel's base of operations, a telephone call will be placed to the Stranding Coordinator, NOAA National Marine Fisheries Service, Southwest Region, Long Beach, to obtain instructions. Although NOAA has primary responsibility for marine mammals in both State and Federal waters, the California Department of Fish and Wildlife will also be advised that an incident has occurred in State waters affecting a protected species.

APPENDIX 5

NOTICE TO MARINERS AND NOTIFICATIONS

Commander
11th Coast Guard District
Building 50-2
Coast Guard Island
Alameda, CA 94501-5100

June 22, 2018

Attention: Local Notice to Mariners
Phone No. 510.437-2970 Fax No. 510.437-5836
E-Mail: d11lnm@uscg.mil

Subject: Notice to Mariners for a Geophysical survey of the Sylmar Ground Return System Marine Facility Santa Monica, CA

1. **NAME OF FIRM:** MBC Aquatic Sciences
   3000 Red Hill Avenue
   Costa Mesa, CA 92626
   Phone No. (714) 850-4830

2. **TYPE OF OPERATION:** Remotely operated vehicle (ROV) survey of proposed new route for undersea tranmission line of Sylmar Ground Return System; approximately 1200 feet from shore to two miles offshorece (see attached figure)
3. **LOCATION/POSITION INFORMATION:** See attached figure

4. **START AND END DATES:** Operational weather window will be from July 16-31, 2018. This survey will be weather dependent. The actual amount of time to collect the geophysical survey data will take 1-3 days. Survey operations will be during daylight hours only.

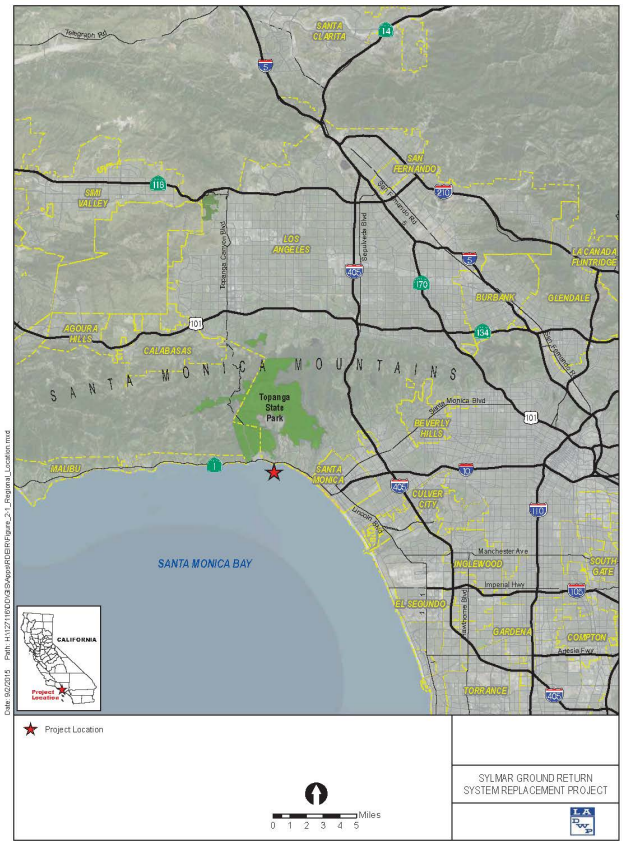
5. **VESSELS INVOLVED:**
   Research Vessel
   "Minotaur"
6. **RADIO: YES** NO **VHF-FM FREQ's MONITORED:** 16

7. **OTHER PERTINENT INFORMATION:**

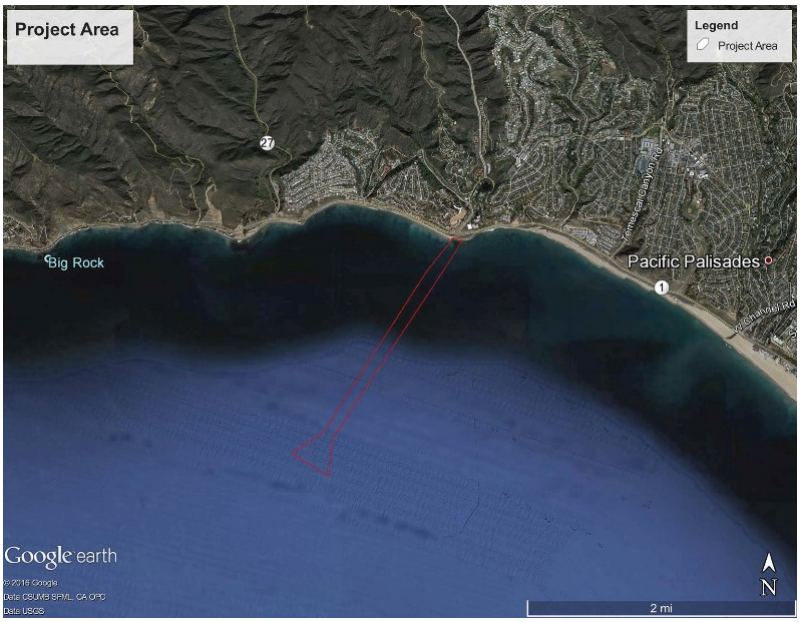
   POC NAME AND TELEPHONE NUMBERS:

   1. Scott Cross, Owner RV "Minotaur" 510)914-0157
   2. Dan McCoy, Project Manager, Weston 760)458-4877
   3. Shane Beck, MBC Aquatic Sciences 714)850-4830

Sylmar Ground Return System, Santa Monica, California. Project area.



Survey Area: Lat: 34.0369656 N Long: -118.556802 W



ROV survey R/V "Minotaur"

Jimmy Nunez

To: 'd11INM@uscg.mil'
Subject: RE: Local notice to Mariners, Santa Monica Bay Ca

From: Jimmy Nunez
Sent: Friday, June 22, 2018 2:43 PM
To: 'd11INM@uscg.mil' <d11INM@uscg.mil>
Subject: Local notice to Mariners, Santa Monica Bay Ca

Please find attached local notice to mariners announcement for a marine survey. Please feel free to contact me with any questions or concerns.

Thanks,
Jimmy

James Nunez
Scientist
3000 Red Hill Avenue | Costa Mesa, CA 92626
Office (714) 850-4830
jnunez@mbcaquatic.com | mbcaquatic.com

Jimmy Nunez

To: 'regodfre@lasd.org'; 'ricky@kingharbor.com'; 'Rocky@scubahaus.com'; 'dive@scubadivela.com'; 'scuba@ecodivecenter.com'; 'info@malibudivers.com'; 'rbhp@redondo.org'; 'web@divensurf.com'; 'mdrharbor@lasd.org'
Subject: RE: Announcement for offshore marine survey in Santa Monica Bay

From: Jimmy Nunez
Sent: Friday, June 22, 2018 2:46 PM
To: 'regodfre@lasd.org' <regodfre@lasd.org>; 'ricky@kingharbor.com' <ricky@kingharbor.com>; 'Rocky@scubahaus.com' <Rocky@scubahaus.com>; 'dive@scubadivela.com' <dive@scubadivela.com>; 'scuba@ecodivecenter.com' <scuba@ecodivecenter.com>; 'info@malibudivers.com' <info@malibudivers.com>; 'rbhp@redondo.org' <rbhp@redondo.org>; 'web@divensurf.com' <web@divensurf.com>; 'mdrharbor@lasd.org' <mdrharbor@lasd.org>
Subject: Announcement for offshore marine survey in Santa Monica Bay

Good afternoon,

Please post attached notification concerning an offshore marine geophysical survey in Santa Monica Bay. Please feel free to contact me with any questions or concerns.

Thanks,
Jimmy

James Nunez
Scientist
3000 Red Hill Avenue | Costa Mesa, CA 92626
Office (714) 850-4830
jnunez@mbcaquatic.com | mbcaquatic.com

mbc AQUATIC SCIENCES